

## CLAIMS

What is claimed is:

1. A projection system comprising:  
a projection screen to:  
at least one of reflect and emit one or more ranges of wavelengths of visible light; and  
absorb visible wavelengths of light in at least one other range that is not included in the one or more ranges; and  
an ambient light source that is configured to output visible wavelengths of light in the at least one other range that has a greater intensity as weighted by the sensitivity of a human eye than that of wavelengths of light output by the ambient light source in the one or more ranges.
2. A projection system as described in claim 1, further comprising a projector to project an image composed of the one or more ranges of wavelengths of light.
3. A projection system as described in claim 1, wherein the one or more ranges include:  
a range of red wavelengths of visible light;  
a range of green wavelengths of visible light; and  
a range of blue wavelengths of visible light.
4. A projection system as described in claim 1, wherein the one or more ranges include a range of ultraviolet wavelengths that cause the projection screen to emit visible light.
5. A projection system as described in claim 1, wherein the one or more ranges include a range of ultraviolet wavelengths and a range of visible wavelengths.

6. A projection system as described in claim 1, further comprising a projector to project an image composed of the one or more ranges of wavelengths of light, wherein the projector includes a component selected from the group consisting of:

- a digital micromirror device (DMD);
- a liquid crystal display (LCD);
- a grating light valve (GLV); and
- a liquid crystal on silicon (LCOS) device.

7. A projection system as described in claim 1, wherein the projection screen is configured to absorb the visible wavelengths of light in the at least one other range by utilizing a component selected from the group consisting of:

- a filter;
- a pigment;
- an optical coating;
- an optical dye; and
- any combination thereof.

8. A projection system as described in claim 1, wherein the ambient light source further comprises:

- a light emitting device that emits wavelengths of light that include:
  - the one or more ranges; and
  - the at least one other range; and
- a light filtering structure that:
  - at least one of reflects and absorbs wavelengths of light emitted by the light emitting device in the one or more ranges; and
  - transmits wavelengths of light in the at least one other range.

9. A projection system as described in claim 1, wherein the ambient light source does not output an image.

10. A projection system comprising:

a projection screen to:

at least one of reflect and emit one or more ranges of wavelengths of visible light; and

absorb visible wavelengths of light in at least one other range that is not included in the one or more ranges; and

a light filtering structure that:

at least one of reflects and absorbs wavelengths of light emitted by the light emitting device in the one or more ranges; and

transmits wavelengths of light in the at least one other range.

11. A projection system as described in claim 10, further comprising a projector to project an image composed of the one or more ranges of wavelengths of light.

12. A projection system as described in claim 10, wherein the one or more ranges include:

a range of red wavelengths of visible light;

a range of green wavelengths of visible light; and

a range of blue wavelengths of visible light.

13. A projection system as described in claim 10, wherein the one or more ranges include a range of ultraviolet wavelengths that cause the projection screen to emit visible light.

14. A projection system as described in claim 10, wherein the one or more ranges include a range of ultraviolet wavelengths and a range of visible wavelengths.

15. A projection system as described in claim 10, wherein the projection screen is configured to absorb the visible wavelengths of light in the at least one other range by utilizing a component selected from the group consisting of:

a filter;

- a pigment;
- an optical coating;
- an optical dye; and
- any combination thereof.

16. An apparatus comprising a light filtering structure that:  
at least one of reflects and absorbs wavelengths of light encountered by the light filtering structure in one or more ranges; and

transmits wavelengths of visible light in encountered by the light filtering structure in at least one other range that is not included in the one or more ranges, wherein:

- the wavelengths of light transmitted by the light filtering structure in the at least one other range have a greater intensity than that of the wavelengths of light transmitted by the ambient light source in the one or more ranges as weighted by a human eye's sensitivity;

- the wavelengths of light in the one or more ranges provide a white light when displayed by a projection screen; and

- the wavelengths of light in the at least one other range are absorbed when received by the projection screen.

17. An apparatus as described in claim 16, further comprising a light emitting device that emits wavelengths of light that include:

- the one or more ranges; and

- the at least one other range.

18. An apparatus as described in claim 16, further comprising a window that transmits wavelengths of light that include the one or more ranges and the at least one other range, wherein the light filtering structure is disposed on the window.

19. An apparatus as described in claim 16, wherein the one or more ranges include:

a range of red wavelengths of visible light;  
a range of green wavelengths of visible light; and  
a range of blue wavelengths of visible light.

20. An apparatus as described in claim 16, wherein the one or more ranges include a range of ultraviolet wavelengths that cause the projection screen to emit visible light.

21. An apparatus as described in claim 16, wherein the one or more ranges include a range of ultraviolet wavelengths and a range of visible wavelengths.

22. A method comprising:  
projecting, by a projector, an image composed of one or more ranges of wavelengths of light;  
displaying the projected image by at least one of reflecting and emitting visible light by a projection screen; and  
outputting by an ambient light source:  
wavelengths of light in the one or more ranges; and  
wavelengths of light in at least one other range that are visible and are not included in the one or more ranges,  
wherein the wavelengths of light output by the ambient light source in the at least one other range have a greater intensity than that of the wavelengths of light output by the ambient light source in the one or more ranges as weighted by a human eye's sensitivity.

23. A method as described in claim 22, further comprising absorbing by the projection screen wavelengths of light output by the ambient light source in the at least one other range.

24. A method as described in claim 22, wherein the one or more ranges include:

a range of red wavelengths of visible light;  
a range of green wavelengths of visible light; and  
a range of blue wavelengths of visible light.

25. A method as described in claim 22, wherein the displayed image is a full-color image when viewed by a human eye.

26. A method as described in claim 22, wherein the one or more ranges include a range of ultraviolet wavelengths that cause the projection screen to emit visible light.

27. A method as described in claim 22, wherein the one or more ranges include a range of ultraviolet wavelengths and a range of visible wavelengths.

28. A method comprising:  
configuring an ambient light source to output:  
wavelengths of light in one or more ranges that cause a projection screen to at least one of reflect and emit visible light; and  
wavelengths of light in at least one other range that is visible and is not included in the one or more ranges,  
wherein the wavelengths of light in the one or more ranges provide a full-color image when displayed on the projection screen and wherein wavelengths of light in the at least one other range are absorbed when received by the projection screen.

29. A method as described in claim 28, wherein the configuring further comprises positioning a light filtering structure that is configured to at least one of reflect and absorb the one or more ranges of visible light emitted by a light emitting device that is configured to emit light having wavelengths in the at least one other range and the one or more ranges.

30. A method as described in claim 28, wherein the one or more ranges

include:

- a range of red wavelengths of visible light;
- a range of green wavelengths of visible light; and
- a range of blue wavelengths of visible light.

31. A method as described in claim 28, wherein the one or more ranges include a range of ultraviolet wavelengths that cause the projection screen to emit visible light.

32. A method as described in claim 28, wherein the one or more ranges include a range of ultraviolet wavelengths and a range of visible wavelengths.

33. A system comprising:

- means for projecting an image composed of one or more ranges of wavelengths of light;
- means for displaying the projected image that:
  - at least one of reflects and emits visible light in response to the one or more ranges of wavelengths of light; and
  - absorbs visible wavelengths of light in at least one other range that is not included in the one or more ranges; and
- means for providing ambient light that outputs visible wavelengths of light in the at least one other range that has a greater intensity than that of wavelengths of light output by the providing means in the one or more ranges as weighted by a human eye's sensitivity.